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ABSTRACT

This document presents a compilation of suggested research and development initiatives abstracted from current educational R&D planning and policy documents. The objectives is to create a reasonably thorough picture of the current state of proposed possibilities and priorities in educational R&D. Each initiative abstract includes, whenever possible, an indication of the origin of the idea, hypotheses, or underlying assumptions; suggested approach and scope in dollars; time and personnel; and expected outcomes. The abstracts have been organized into six sections that (1) review initiatives addressed to early childhood through adult and post-secondary education; (2) summarize initiatives addressed to the overall education system; (3) review documents on new dissemination procedures and R&D strategies; (4) cover documents dealing with initiatives directed to the R&D system in general; (5) review initiatives directed to sociology, economics, history, philosophy, and psychology; and (6) address R&D issues raised at the congressional hearings to create a National Institute of Education. (Author/DN)

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PREFACE

This Working Note presents a compilation of suggested R&D initiatives abstracted from current educational R&D planning and policy documents. Its objective is to create a reasonably thorough picture of the current state of proposed possibilities and priorities in educational R&D. It is designed as a background document for the educational R&D agenda project. Each initiative abstract includes, whenever possible, an indication of the origin of the idea, hypotheses or underlying assumptions, suggested approach, scope in dollars, time and personnel, and expected outcomes.

Planning and policy documents from various sources, including federal agencies and interagency committees, foundation-sponsored commissions, and university scholars, were examined to incorporate as wide a range of perspectives as possible. The largest number of documents from a single source came from the National Institute of Education (NIE) Planning Unit, which has recently completed an intensive R&D planning project involving members of the Planning Unit staff, consultants, and outside contractors. In addition to documents directly addressing R&D issues, policy documents recommending "action" programs, such as the Newman Panel report on higher education, or the Urban Coalition's Counterbudget, were also examined in the belief that the evaluation or implementation of such recommendations would be dependent upon carefully designed programs of R&D.

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INTRODUCTION

This Note presents summaries of educational R&D initiatives suggested in 21 selected documents. Many of these documents have similar characteristics, although they are from sources representing a variety of interests and expertise. One of the most frustrating of these characteristics is a high degree of generalization and vagueness in the description of individual initiatives, Most of the planning documents are not tied to specific budgets or timelines; the resultant uncertainty and generality in describing initiatives make it difficult to draw valid, or even proable, conclusions about the plausibility of actual implementation for any proposal.

Not surprisingly, most of the documents focus almost exclusively on initiatives within the domain of the source agency or group: little consideration is given to the design of R&D programs in which the activities of some agencies complement the activities of other agencies. Several documents call for interagency or group cooperation; however, with the exception of one suggestion for an interagency data bank, no document proposes concrete ways in which that cooperation might be achieved, Two documents of the NIE provide the most extensive recommendations for cooperative relationships in the context of specific initiatives.* These documents suggest that the NIE should take advantage of the prior experience and expertise of other federal agencies through planning conferences or advisory meetings, but they do not propose joint programs or R&D agendas.** The Interagency Panel on Early Childhood Research and Development, a group organized to foster coordination and cooperation

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*B. Kooi, et al., "A Research and Development Agenda for the National Institute of Education," National Institute of Education Planning Unit, Washington, D.C., April 1972; and S. Raizen, et al., "Research and Development in Education: Analysis and Program Development," National Institute of Education Planning Unit, Washington, D.C., 1972.

**It should be pointed out that several of the NIE documents were prepared under severe time constraints.

among federal agencies supporting and/or performing research in early childhood education, will be a probable source of plans for coordinated initiatives. To date, however, documents produced by this panel are primarily listings of suggested research questions.

Another characteristic, perhaps related to a limited perspective in planning, is the lack of a consistent, rational procedure for the determination of initiatives. Almost all documents examine the use of one of two procedures as the basis for making recommendations for R&D initiatives: either a "fill-in-the-gaps" approach, in which lacunae in current research or practice are identified and then programs developed to fill these lacunae, or a "vision-of-the-future" approach, in which the goals of education or society are defined and programs are designed to meet these goals. Discipline-oriented scholars and people involved in the day-to-day operation of a school or program tend to favor the first approach, while policy planners and social critics or engineers adopt the second. Perhaps no single set of R&D initiatives, no matter how carefully designed, can be comprehensive in a field so complex as education. Yet, even in examining the most comprehensive documents from the NIE Planning Unit, it is difficult to identify more than quasi-rational grounds for the inclusion or exclusion of any particular initiative.

In spite of possible shortcomings in the documents examined, it is possible to identify several recurring themes or R&D topics emphasized by a number of authors from a variety of perspectives. Their ubiquity, if not their grounding in objectivity, suggests that they deserve attention in any far-reaching R&D agenda. The most often emphasized area for R&D is the educational process itself. All the documents reflect the belief that not enough is known about what actually happens to a student or teacher in a learning situation. Clark and other sociologists and anthropologists advocate careful observation of classroom situations around the country as one means to better our understanding of education.* Cohen calls for a program

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*B. Clark, "Sociology and the Study of Education: Report of a Planning Conference for the National Institute of Education," National Institute of Education Planning Unit, Washington, D.C., 1971.

to develop a conceptual framework for schooling "which more or less squares with the evidence."* Markley proposes better understanding of the societal context of education through "investigating the present condition of society and its likely (plausible) future" with respect to education.** Several documents suggest creating a national discourse on education through a presidential commission, social marketing procedures, or community debates to examine publicly what is known about education and to illuminate issues that need further exploration.

Most authors concur that a better understanding of the educational process will be difficult to achieve without the development of improved assessment techniques over a much wider range of variables. Etzioni suggests that the development of measures for expressive skills will result in the better articulation of programs to develop these skills.*** Blake cautions that, particularly in compensatory education, assessment over less than a 6-year time-span may distort the value of the intervention programs.† Katz, who is interested in the understanding of emerging innovation, suggests that if new programs are assessed by traditional methods, the results may mask their real significance.†† And many economists are concerned that

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*D. Cohen, "The National Institute of Education: What Can Be Expected?" National Institute of Education Planning Unit, Washington, D.C., April 1972.

**O. W. Markley, et al., "Future-Oriented Program Alternatives for the National Institute of Education," National Institute of Education Planning Unit, Washington, D.C., April 1972.

***A. Etzoini, "An N.I.E. Strategy Paper," National Institute of Education Planning Unit, Washington, D.C., April 1972.

†E. Blake, "Draft Curriculum R&D Suggestions, December 18, 1971," in W. Robinson (ed.), *Curriculum Development: Report of a Planning Conference for the National Institute of Education,* December 17-18, Washington, D.C., 1971 (unpublished).

††L. Katz, "Open-Informal Education: Recommendations for Research and Development," National Institute of Education Planning Unit, Washington, D.C., December 1971.

traditional input/output measures are inadequate and that social and economic effects of schooling are not well understood.

Two additional and related major themes are apparent in initiatives concerned with the creation and provision of alternatives at all levels of education: one suggests that a greater degree of organizational responsiveness would improve the entire system of education; the other implies that the students should be given as much control as possible over the learning situation, regardless of the setting or the subject. Several initiatives focus on elements in existing educational organization, suggesting experimentation with alternative choice and decisionmaking mechanisms and incentive and reward structures to increase responsiveness. Their objective is to open up existing institutions so that a student may have unrestricted choice of those portions of a program that are appropriate for him. Other initiatives reflect a belief that new agencies are needed to guide the existing system into more responsive ways. Usually community or regionally based, these agencies are envisioned as coordinators or "brokers" of existing educational services. The development of methods for the teaching of complex skills is proposed as one approach toward enabling the learner to control his own education. A number of initiatives addressed to issues of access, from equal opportunity programs to cable television community colleges, are also designed to foster learner control.

In examining initiatives from the perspective of the R&D system, it is possible to identify three strategies for performing R&D proposed in many documents. A merging of research approaches or a multidisciplinary view of research is the most advocated strategy. Analysts recommend it for different reasons--for improving the quality of educational effectiveness research, for designing new schools, for creating problem-oriented curricula, or for evaluating open education--but all are concerned that a narrow or single-discipline approach to the problems of education will not produce substantial results.

A second strategy arises from this same concern with a narrowness of vision. Several analysts believe that because there is as yet no comprehensive understanding of the educational process, it

is unwise for researchers to isolate themselves from actual classroom situations. Indeed, they feel that it is only through learning from outstanding examples of success in these classroom situations--reading programs, college chemistry classes, correspondence schools, ski instruction--that the educational process can be elucidated and educational success extended. Thus, careful observation and exploitation of the best educational practice is advocated for all R&D programs.

Strategies for the productive utilization of the results of R&D make up a third group of suggestions. Several authors urge a more thorough analysis and systematization of knowledge resulting from R&D. Others propose the development of linkage mechanisms between the R&D system and the operating system. Another group suggests an analysis of the R&D system itself including, for example, the social and political context of curriculum development or the effect of federal policy shifts on the regional laboratories and R&D centers.

The abstracts in this Note have been organized into six sections. Section I reviews initiatives addressed to early childhood through adult and post-secondary education. Initiatives addressed to the overall education system are summarized in Section II, including suggestions relating to development of new assessment techniques and experimantation in governance or incentive mechanisms. Section III reviews documents on new dissemination procedures and R&D strategies; Section IV covers documents dealing with initiatives directed to the R&D system in general. Initiatives directed to sociology, economics, history, philosophy, and psychology are reviewed in Section V. Section VI addresses R&D issues raised at the congressional hearings to create a National Institute of Education; although these do not present actual R&D initiatives, they do raise a number of questions addressed to the aims of education, the issues of educational research, and ways of improving teaching and learning.

II. INITIATIVES DIRECTED TO SPECIFIC GRADE LEVELS

6/7/8

NATIONWIDE VOLUNTARY PRE-KINDERGARTEN PROGRAMS

Document: L. Benson and H. Wolman (eds.), *Counterbudget: A Blueprint for Changing National Priorities, 1971-1976*, Praeger Publishers, New York, 1971.

Goal: Make learning programs, both full-day (10-12 hours) and half-day (3-4 hours), available to all children between the ages of two and four years of age on a voluntary basis.

Approach and Scope: Develop a large-scale federal action program that would benefit from R&D. Spend $700 million for student aid and institutional support over the next 5 years to train an additional 80,000 early education teachers and 160,000 paraprofessionals. This would enable a 100 percent increase in early education enrollment by FY 1976 (1.3 million to 2.6 million). These pre-kindergarten programs should be supervised by the local public school system because continuity of the learning experience is important and because, since the public schools would be accountable for learning outcomes, they should "be given every opportunity to contribute to their students' early education." If a public school system were unwilling or unable to supervise such a program, then another appropriate agency should be funded to do so.

EARLY CHILDHOOD SOCIAL-EMOTIONAL DEVELOPMENT

Document: J. E. Chapman, "Early Childhood Research and Development Needs, Gaps, and Imbalances," paper presented for the Interagency Panel on Early Childhood Research and Development, Washington, D.C., January 1972, pp. 17-20.

Approach: Primarily an identification of research needs:

1. Conceptualization of social-emotional development: examination of empirical norms; refinement and synthesis of motivation and personality theory and self-determination and individual competence theory; other areas for work include those of values and attitudes, pleasure and play, aggression, and social relationships.
2. Environmental influences: effects of "significant others," including peers, development of interaction measures, research on the changeability of personality traits.
3. Biological factors: studies of the role of biological development in the formation of "normal" personality characteristics.

Scope: Not indicated.

ENVIRONMENTAL INFLUENCES IN EARLY CHILDHOOD

Document: J. E. Chapman, "Early Childhood Research and Development Needs, Gaps, and Imbalances: Overview," paper presented for the Interagency Panel on Early Childhood Research and Development, Washington, D.C., February 1972, pp. 21-23.

Approach: This document is primarily a cataloging of research needs:

1. Society at the national and international level: investigation of "how genetic factors affect social stratification and how social stratification affects the biological endowment of certain populations across generations."
2. The family: study of effects of family interactions and variant family forms on child development, including study of how to constitute change in parental childrearing, the effects this training would have on child development, and further consideration of coordination between home development functions and those of other social institutions. For example, what is the impact of learning at school compared to learning at home?

Scope: Not indicated.

EARLY CHILDHOOD FORMAL SCHOOLING

Document: J. E. Chapman, "Early Childhood Research and Development Needs, Gaps, and Imbalances: Overview," paper presented at the Interagency Panel on Early Childhood Research and Development, Washington, D.C., February 1972, pp. 23-27.

Approach: This document is primarily an identification of research needs:

1. Goals: necessary to "clarify and validate objectives at all levels of education." Suggests widening of goals to include nonacademic skills and empirical investigation of the relationship between school practices and nonschool demands. Suggests study of individualization of goals.
2. General features of classroom atmosphere and curriculum: necessary to have a systematic comparison between different educational approaches at both pre- and elementary-school level, as well as a study of the affect of peer influence in the classroom.
3. Specific educational techniques: detailed systematic information is needed regarding what actually occurs in classrooms in order to specify "productive and counter-productive educational techniques." Much more work is necessary in differentiating and individualizing instruction. In the area of computer-assisted instruction (CAI), work is necessary on the effects of CAI on the child's attitudes, personality, and motivation. Development of "ethnically relevant academic content" must be increased.
4. Staff: In studying teacher characteristics, emphasis should be placed on "direct observation of contingencies between teacher and child behavior."

Scope: Not indicated.

COGNITIVE DEVELOPMENT

Document: J. E. Chapman, "Early Childhood Research and Development Needs, Gaps, and Imbalances: Overview," paper presented for the Interagency Panel on Early Childhood Research and Development, Washington, D.C., February 1972, pp. 15-16.

Approach: This document attempts to present a "moderately detailed overview of needs, gaps, and imbalances in early childhood R&D." It concentrates primarily on identifying research needs and suggesting reserach strategies, rather than on articulating actual R&D programs:

1. Conceptualization of cognition and cognitive development: systematic test of cognitive theories of Piaget, Bruner, and Gagne; resolution of discrepancies between various theories; and integration with social and physical development theories.
2. Biological and environmental influences: consideration of the physiological, biochemical, and genetic factors underlying learning ability and of the relationships between environmental factors and the cognitive process. For example, what are the optimal learning situations for specific skills? How do the timing of deprivation and/or enrichment affect cognitive growth?

Scope: Not indicated.

OPEN EDUCATION

Document: L. Katz, "NIE Open-Informal Education: Recommendations for Research and Development," National Institute of Education, Washington, D.C., December 1971.

Strategies: (1) Focuses on pre-school and primary grades, (2) low-profile, nonevangelical posture, (3) priority for "opening" existing classrooms rather than creating new ones, and (4) priority for documentation and review of R&D.

Approach: Suggests five categories of problems for R&D utilizing the above strategies:

1. Teaching: What pattern of attributes and behaviors characterize successful open-classroom teachers? What are the teacher's attitudes toward power, control, and permissiveness toward children? What are useful procedures for selecting and training open-classroom teachers? (This effort should include a thorough analysis of all current training projects, a distinction between training for teachers with no teaching experience and those with prior experience, and alternative models for training including a variety of Teacher Centers.)

2. Administration: Increase leadership potential of principals through developing a new administrative position--Executive Secretary--that would free the principal from bureaucratic activities. Summarize knowledge of the impact of leadership styles on the individual classroom. (This might lead to some experimental projects in leadership training.)

3. School-community relations: Assessment of community readiness and willingness to support open education. This should include careful identification of subgroups within the community so that heterogeneity of school's clientele can be appreciated.

4. Curriculum materials: The NIE should support R&D on "computer-based reference/resource 'libraries' by means

OPEN EDUCATION (continued)

of which primary age children may 'look up' a wide range of facts and figures." This R&D should also include work on computer responsiveness to children in an open-classroom curriculum.

5. Evaluation: The NIE should support a wide range of evaluation approaches, including a trained on-the-site historian in all developmental projects, classroom observational studies which assess the "quality of individual children's ordinary or typical day-to-day experiences," and exploration of children's attitudes toward and associations with school.

HOME-BASED EDUCATION

Document: B. Kooi, et al,, "A Research and Development Agenda for the National Institute of Education," National Institute of Education Planning Unit, Washington, D.C., April 1972, pp. 140-156.*

Hypotheses: If children participate in an in-home early education program aimed at the development of a wide range of explicitly defined skills, and liason is maintained between the home-learning center and the school during the primary grades, they will demonstrate better achievement and social adjustment during their school careers.

Approach: Explore ways of complementing current education (primarily for "disadvantaged" students) by making use of neighborhood home-learning centers. Develop comprehensive list of skills to serve as guidelines for assessing child development and desired outcomes for early education programs. Develop appropriate assessment instruments, curriculum materials, and teacher training procedures keyed to this list. Field test a comprehensive plan to cover all phases of installation and coordination of home-learning centers throughout a community. Develop a recommended list of objectives or skills to be attained by children in primary grades and articulate it with the pre-school list to avoid overlap or omission.

Scope: Over a 5-year period: learning outcomes and assessment instruments, $6 million; home-learning centers, $10 million; coordination of school and home, $4 million; evaluation, $2.5 million--total: $22.5 million. The author also suggests a $5 million complementary program in child-care information centers.

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*See also F. Mosteller and D. P. Moynihan (eds.), *On Equality of Educational Opportunity*, Random House, New York, 1972; and *Report of the First National Home Start Conference*, prepared by S. Kapfer, Home Start Program Associate, St. Louis, April 3-7, 1972.

GUIDELINES FOR RESEARCH STRATEGIES IN EARLY CHILDHOOD R&D

Document: M. Sterns, et al., "Toward Interagency Coordination: An Overview of Federal Research and Development Activities Relating to Early Childhood, and Recommendations for the Future," Interagency Panel on Early Childhood Research and Development, Washington, D.C., 1971.

Approach: (1) Broaden scope to include all, not just "disadvantaged," children and to develop pluralistic programs and assessment instruments; (2) conduct research on total child--reduce focus on separate processes of child development; (3) research total life space of child--the influence of all environmental factors; (4) conduct fundamental research that contributes to theories of growth and development; (5) promote social policy research--"relative merits of various intervention programs must be compared"; (6) conduct longitudinal research: (7) support studies to improve the research process itself: (a) goal-oriented research--studies to identify "appropriate goals for child development"--these can then be used to determine related goals for R&D; (b) new research methodologies--new behavioral observation techniques and assessment instruments--"methods to evaluate the relationships between specific research variables or program characteristics (inputs) and specific results or outcomes"; and (c) dissemination of research--including feedback of information from users to researchers and work on moving a proven "model" or "demonstration" program into national implementation.

READING AND ARITHMETIC SKILLS

Document: R. L. Benson and H. Wolman (eds.), *Counterbudget: A Blueprint for Changing National Priorities, 1971-1976*, Praeger Publishers, New York, 1971.

Goal: Every student leaving the public school system should possess "at least the minimum communications and math skills required for successful participation in the national economy, as defined in terms of absolute performance standards set by the U.S. Office of Education."

Approach: A large-scale federally funded action program that would benefit from R&D. Restructure Title I to focus exclusively on reading and math. Each eligible state would receive $300 for each student (kindergarten through 6th grade) "not progressing at an acceptable rate toward the federal minimum math and reading standards." State eligibility would depend on securing a comprehensive plan from every school with eligible students. Each state would also have to agree to "assume temporary control of individual schools that failed to meet their stated objectives." If the state were unable to meet the objectives, then the $300 per student would be given directly to the student in the form of federal education vouchers and the State Education Agency (SEA) and Local Education Agency (LEA) would lose "a proportionate share of the federal general education-assistance money they were receiving." The Office of Education would identify and develop a wide variety of model programs that succeed in raising student performance. It would also "create a system of federal support teams to disseminate information to SEA's." The Office of Education would also "be responsible for administering reading and math achievement tests to every public elementary and secondary school student in the nation at the beginning and end of every school year."

READING AND ARITHMETIC SKILLS (Continued)

Scope: $2.1 billion by FY 1976 for grants of $300 per student; $500 million annually for a testing program; $100 million to states to develop and operate state support teams.

COMPLEX SKILLS

Document: S. Raizen, et al., "Research and Development in Education: Analysis and Program Development," National Institute of Education Planning Unit, Washington, D.C., April 1972 pp. 82-84; and O. W. Markley, et al., "Future-Oriented Program Alternatives for the National Institute of Education," National Institute of Education Planning Unit, Washington, D.C., April 1972.*

Hypothesis: "If an increasing 'standard of living' is to be transcended by an increasing 'quality of life' in society, more adequate development of higher level skills is necessary" (Markley).

Approach: Examination and development of approaches to the teaching and acquisition of complex skills. Identify higher-level skills; develop instructional components and formats for them and implement in appropriate settings. For higher education, the NIE might support the development of a wide variety of source materials to help "non-elite institutions provide the kind of problem-focused or case study approach to instruction supportive of the acquisition of these skills." A steering committee from a variety of institutions and disciplines should assure that rigorous, pedagogically sound materials are developed. Experimentation with a variety of media for presentation of the materials should also be conducted.

Scope: An initial budget of $.5 million, expanding to $3-5 million within 2-3 years, depending on number of developments to be supported. Continuation should be based on (1) how widely and effectively materials are used and (2) the need for federal subvention.

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*See also D. Michael, *The Unprepared Society: Planning for a Precarious Future*, Basic Books, New York, 1968.

LEARNER-CONTROLLED EDUCATION

Document: B. Kooi, et al., "A Research and Development Agenda for the National Institute of Education," National Institute of Education Planning Unit, Washington, D.C., April 1972, pp. 157-168.*

Approach: "Developing the full-range of each student's capacities. . . while [as much as possible] putting control of the learning process in the hands of the learner himself." The document suggests five categories for large-scale R&D:

1. Choice and definition of objectives: develop procedures for starting objectives in domains other than the traditional academic knowledge and skill areas and identifying goals appropriate for various social groups.
2. Organization of objectives: identify dependencies and independencies among learning objectives and develop curricula with multiple entry points and pathways.
3. Instructional methods: determine the conditions that optimize learner "self-programing." Develop instructional materials reflecting these conditions (this might include examining successful proprietary schools and local efforts which successfully teach investigative skills) and teacher training strategies for using the materials.
4. Display and access systems: methods must be developed for displaying options in forms useful to all segments of population and for helping people clarify their own goals so that they will be able to make appropriate choices among options. Methods to be developed and studies should include "information retrival" which is usually high technology, "browsing," which categorizes

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*See also L. Resnick, "Open Education: Some Tasks for Technology," Learning Research and Development Center, University of Pittsburgh, 1971.

LEARNER-CONTROLLED EDUCATION (Continued)

the open classroom, and "counseling and guidance."

5. Evaluation: Development of better measurement of individual performance across a wide range of objectives; development of measures of *how* learner-controlled education is working as well as *whether* it is working.

Scope: $2 million for planning year. Operational budget is not indicated.

CAREER EDUCATION, ELEMENTARY THROUGH ADULT EDUCATION

Document: B. Kooi, et al., "A Research and Development Agenda for the National Institute of Education," National Institute of Education Planning Unit, Washington, D.C., April 1972, pp. 108-140.

Hypothesis: Given a wide range of career role models and experiences, students will "make more informed career choices and will be better prepared for employment."

Approach: Suggests four categories for large-scale R&D:

1. Career experiences: support design and development of alternative ways to provide work experience at all levels of education (e.g., simulations of career situations in schools, school-run industries, etc.). Development should include analysis of obstacles to installation of alternatives and design of solutions to overcome them (e.g., logistics studies including entry and exit problems, length of participation, etc.; economic analysis including cost-effectiveness studies and payment systems for student workers; and legal and political analysis including credit transferability, minimum wage, child labor laws, etc.).
2. Career role models: develop mechanisms for increasing school staff diversity "based on empirical evidence that such variability has a significant impact on students." The program would involve developing "selection tests to measure the competence of adults in teaching career objectives," then using these measures to recruit, through a variety of methods, noncertificated career practitioners to teach career education. If the evaluation of this experimental program is positive, design competency-based teacher certification programs. At the college level, work might center on the effects of "providing added compensation or promotion to faculty on evidence of working experience outside the university."
3. Access to career information: develop alternative

CAREER EDUCATION, ELEMENTARY THROUGH ADULT EDUCATION (Continued)

information delivery mechanisms (e.g., pre-school career primers, career planning games, mass media, national voluntary job information service, etc.) and disseminate the most successful ones.

4. School-work sequence: explore a wide range of alternatives to the traditional school, then work, sequence. For example, investigate mechanisms that would lead to a recurrent pattern of education and career such as tax incentives for corporations that provide employee education sabbaticals. Experiment with performance criteria, rather than years of attendance, for school graduation. Develop alternatives to the academic-year cycle to spread out job opportunities.

Scope: Experience: $6.5 million for FY 1973; $8.0 million, FY 1974. Career role models: $1.75 million, FY 1973; $2.5 million, FY 1974. Career information. support of on-going USOE projects, $13.7 million, FY 1973; on-going, plus new starts, $12.2 million, FY 1974--total: $11.95 million, FY 1973; $12.7 million, FY 1974.

REAL WORLD EXPERIENCES FOR STUDENTS, KINDERGARTEN THROUGH GRADE 12

Document: A. Etzioni, "An N.I.E. Strategy Paper," National Institute of Education Planning Unit, Washington, D.C., April 1972, pp. 58-66.*

Hypothesis: If students are given opportunities to participate in real-world activities, they will gain a more realistic notion of the world and will be less alienated from it.

Approach: Evaluation and development of educational activities which entail participatory, learning-by-doing projects. Evaluation of existing programs such as Tutorial Community, volunteer projects, etc., and, possibly in conjunction with ACTION, funding of a limited number of demonstration projects.

Scope: $1-2 million for evaluation of existing programs and "development for a few new ones." $5-8 million a year if a series of demonstration projects are carried out wholly by the NIE. Program could rely in part on educational administration, youth leaders, etc. Collaboration with other agencies such as ACTION, local programs, etc., would be essential.

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*See also J. Coleman, et al., *Equality of Educational Opportunity*, U.S. Government Printing Office, Washington, D.C., 1966; J. Coleman, *The Evaluation of Equality of Educational Opportunity*, The Rand Corporation, R-488-RC, July 1970; and J. Coleman, "The Children Have Outgrown the Schools," *Psychology Today*, Vol. 5, No. 9, February 1972, pp. 72-76, 82.

EDUCATIONAL ELEMENTS* FOR DISADVANTAGED STUDENTS

Document: A. Raizen, et al., "Research and Development in Education: Analysis and Program Development," National Institute of Education Planning Unit, Washington, D.C., April 1970, pp. 147-150.

Approach: Pursue, in a systematic fashion, the development of the most promising elements that have worked in the education of the disadvantaged so that they can be easily adopted in existing educational settings. Develop the best of these elements in a transportable format. Development proposals would be selected for support on the basis of evidence provided on likely gains to be expected, validity of plans for integration into specified settings, quality of persons to be involved, and developmental design. Based on the experience of developing already existing elements, new prototypes would also be created.

Scope: $.3 million for adaptation of each existing element; $1 million for development of each new element.

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*"Element" could be curriculum, instructional technique, enrichment activites, etc.

FINANCING ELEMENTARY AND SECONDARY EDUCATION

Document: Charles Schultze, et al., *Setting Priorities: The 1973 Budget*, The Brookings Institution, Washington, D.C. 1972.

Approach: Identifies three major problems in school finance and discusses alternative solutions:

1. Overall fiscal problem: reform the property tax to make it less unpopular by improving administration and relieving burden on low-income elderly taxpayers, or find some other source of funding such as a statewide property tax or a federal value-added tax.
2. Inequality among jurisdictions: the central government could establish a minimum level for spending or could offset differential resources by providing a larger subsidy to districts with low resources than to those with high resources or could equalize fully.
3. Inequality for racial minorities and the poor: establish compensatory education, integration, or community control.

In discussing the above alternatives, the authors point out that the federal government must determine "appropriate objectives for federal programs and the amounts to be devoted to achieving them . . . and how to distribute the money among the states and school districts." The authors conclude by observing that any federal program is really an attempt "to change the behavior of state and local officials and parents," who are the real decision-makers in elementary and secondary education. "The efficiency of various federal programs in changing such behavior is a subject about which little is known."

EARLY EXIT EXPERIMENT

Document: S. Raizen, et al., "Research and Development in Education: Analysis and Program Development," National Institute of Education Planning Unit, Washington, D.C., April 1972, pp. 89-92.*

Hypothesis: If the separation between school and the real world is reduced, those students from whom school is inappropriate will be able to find more satisfactory learning experiences.

Approach: Lower compulsory school attendance age to fourteen and give students entitlements for the remainder of their high school education, usable at any time in either school or nonschool settings. Planning must include fiscal arrangements, alternative training and educational opportunities outside school; field work to obtain cooperation of private and public agencies; nature and design of development. Development includes location of 5 to 10 test sites; careful preparation in terms of attitudes of and coordination with LEAs and SEAs, community representatives, parents, and students, etc; sponsoring development of alternative educational sites and materials when necessary; implementation; and assessment. This experiment might be tried in conjunction with a voucher experiment.

Scope: $.10 million, planning phase; $.5 million per site (assuming entitlement funds come from SEAs and LEAs), plus $2 million necessary instructional development applicable to several sites.

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*See also J. Coleman, "How Do the Young Become Adults?" Report No. 130, Johns Hopkins University, Center for Social Organization of Schools, Baltimore, Maryland, May 1972; and I. Illich, *Deschooling Society*, Harper & Row Publishers, Inc., New York, 1971.

MULTIDISCIPLINARY, PROBLEM-ORIENTED COURSES FOR ADOLESCENTS

Document: S. Raizen, et al., "Research and Development in Education: Analysis and Program Development," National Institute of Education Planning Unit, Washington, D.C., April 1972, pp. 152-154.

Assumption: Much of the "social science" taught in schools today seems irrelevant to students. Courses giving students an opportunity to study those institutions which impinge on their lives "may provide students with better tools to work for desired social gains while decreasing isolation."

Approach: Study social institutions in an accurate way to provide understanding of complexities of society. Planning meetings involving a variety of expertise to develop the initial structure which would include suggestions of institutions to be studied (e.g., Bureau of Motor Vehicles, school system, retail grocery chains, etc.) and detailed procedures for developing investigation techniques (e.g., participant observation, survey). Prime consideration must be adaptability to a variety of high school situations. Developmental efforts will be funded and installed in a number of test sites. Installation will involve not a finished product, but flexible procedures and models that can be adapted by teachers and students.

Scope: $1.5 million for the first year and $3 million for the second year.

CAREER EDUCATION, SECONDARY EDUCATION

Document: L. Benson and H. Wolman (eds.), *Counterbudget: A Blueprint for Changing National Priorities, 1971-1976*, Praeger Publishers, New York, 1971.

Goal: Provide every student with information and experience necessary to select an appropriate career objective and with the opportunity to pursue that objective through placement in either a post-secondary institution or a full-time job upon high school graduation.

Approach: A very large-scale federal action program that has a number of R&D possibilities:

1. Crash reading and math achievement program operating under the same procedures as revised elementary education Title I program (see Reading and Arithmetic Skills, p.18).
2. Establishment of a career education program emphasizing "the placement of students in work-related adult activities outside the school." The federal government's principal responsibility would be the identification and development of successful model programs in a variety of settings.
3. Revision of present vocational education programs to reach a wider spectrum of students and "establishing federal guidelines requiring the participation in formulation of vocational course plans of employers and educational institutions who are expected to receive the graduates of these programs."
4. Creation of a federally financed career placement program operating in all of the nation's public senior high schools. Schools would be required to maintain contact with their graduates for a full year after initial placement.

Scope: Reading and math program, $1.5 billion per year by FY 1976 (to be reduced in subsequent years as the elementary program is more successful). A career education program,

CAREER EDUCATION, SECONDARY EDUCATION (Continued)

including expenditures for training and retraining teachers and counselors, $2.5 billion by FY 1976; a career placement program, $293 million by FY 1976.

"UNBUNDLING" OF HIGHER EDUCATION

Document: S. Raizen, et al., "Research and Development in Education: Analysis and Program Development," National Institute of Education Planning Unit, Washington, D.C., April 1972, pp. 93-96.*

Hypothesis: If the traditional full-time 4-year higher education package of study were "unbundled," then more students would be able to receive the benefits of higher education and student and institutional resources would be conserved.

Approach: Separate the services and function of higher education into discrete components--carried out by both the profit and nonprofit sectors--to introduce greater flexibility and responsiveness into the system of higher education. After planning in a number of agencies and institutions, development will begin with the extension of external credentialing mechanisms and agencies such as the Educational Testing Service, the College-Level Examination Program, or the New York State Regents' External Degree Program and the development of instructional components such as courses developed by professional societies to meet the requirements of their proficiency examinations. Student financial support measures and evaluation criteria will also be designed.

Scope: A complete unbundling would take several years and would involve a wide variety of people from government, business, and universities. Estimated costs for FY 1973 and FY 1974 are $3 million and $6 million, respectively.

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*See also *Less Time, More Oprions: Education beyond the High School*, a special report by the Carnegie Commission on Higher Education, McGraw-Hill Book Company, Inc., New York, 1971; and F. Newman, et al., *Report on Higher Education*, U.S. Government Printing Office, Washington, D.C., 1971.

REGIONAL EXAMINING UNIVERSITIES

Document: F. Newman, et al., "A Preview of the Second Newman Report," *Change*, Vol. 4, No. 4, May 1972, pp. 28-34.

Objective: Provide mechanisms to measure both academic knowledge and practical proficiency in ways that will lead to more flexibility in higher education.

Approach: The federal government should provide long-term funding for a number of regional examining universities which would engage in the development of new kinds of performance evaluation and delivery systems for both instruction and evaluation.

Scope: No financial estimate given. The document suggests that groups of states would share the services of each regional university.

REORIENTING GRADUATE EDUCATION

Document: F. Newman, et al., "A Preview of the Second Newman Report," *Change*, Vol. 4, No. 4, May 1972, pp. 28-34.

Approach: Change the direction of graduate education from internally oriented interests to the broader and longer term interests of society. An action program would consist of (1) fellowships awarded by nationwide competition (through the National Science Foundation); (2) a separate fellowship pool, same quality criteria, for students from disadvantaged backgrounds; (3) companion grants to universities accommodating the federal fellowship students; (4) institutional project grants to graduate schools to assist in developing responsive and effective programs in needed fields;* (5) a reduction in full-funding of graduate school costs, forcing students to share the financial responsibility of their education.

Scope: Not indicated.

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*This is a potential area of R&D. The National Science Foundation has begun to support research in this area with their science and social problems development work. In determining the course content for a "new" field, one might want to study the top people in the field who had been trained in other disciplines to determine what in their background was directly relevant. Designing a system of internships or a new form of dissertation based on project work within a large-scale social program might also be appropriate.

REVISION OF ACCREDITATION PROCEDURES

Document: F. Newman, et al., "A Preview of the Second Newman Report," *Change*, Vol. 4, No. 4, May 1972, pp. 28-34.

Objectives: 1. A new system for eligibility for federal funds,
2. New measures for protecting educational consumers, and
3. New federal support for experimental accrediting mechanisms.

Approach: Separate the accreditation process from that of establishing eligibility for federal funds. An action program would consist of (1) establishment of nationwide federal eligibility criteria, including educational effectiveness standards not based on traditional input criteria; (2) a requirement that all post-secondary institutions publish an annual prospectus including faculty-student ratio, cost of instruction, attrition rate, etc; and (3) establishment of experimental accrediting mechanisms--two possible areas are for experimental colleges and training programs sponsored by government and industry. Possible R&D issues: Developing educational effectiveness criteria, determining categories of information for annual prospectuses and finance mechanisms for their production; developing alternative accrediting schemes.

Scope: Not indicated.

III. INITIATIVES DIRECTED TO THE OVERALL EDUCATIONAL SYSTEM

CABLE TELEVISION

Document: G. Lesser, "Draft of Curriculum R&D Suggestions, December 18, 1971," in W. Robinson (ed.), *Curriculum Development: Report of a Planning Conference for the National Institute of Education*, Washington, D.C., December 17-18, 1971 (unpublished).

Assumption: Unless an education agency begins work on a variety of methods and models soon, "we will abdicate any responsibility for the public service and educational uses of cable in the same way that we abdicated responsibility for commercial television 25 years ago."

Approach: Begin developing models for collaboration of curriculum developers, production experts, and researchers. The kinds of materials that cable television should make available to learners must be determined, as well as ways to develop curricula to guide program development. Formative evaluation--"child watching"--should be used to discover what succeeds, fails, or needs modification. Financing and governing mechanisms must also be investigated.

TEACHER EDUCATION

Document: P. Dow, "Draft of Curriculum R&D Suggestions, December 18, 1971," in W. Robinson (ed.), *Curriculum Development: Report of a Planning Conference for the National Institute of Education*, Washington, D.C., December 17-18, 1971 (unpublished).

Assumption: "The central weakness of American education is the low quality of teaching."

Approach: Study what makes an effective teacher and what are the best ways of training them. Then, based on the results of these studies, launch a variety of experimental programs "designed to develop teachers as professionals." (Berreiter, in this same document, agrees that teacher incompetence is a major problem, but calls for the *deprofessionalization* of teaching--the recognition that it is a craft needing technical training. He suggests establishing master teachers to oversee the regular teachers.) New curricula should be introduced for teacher in-service education to "provide teachers with the opportunity to continue to learn and grow."

NEW PATTERNS OF AUTHORITY

Document: A. Etzioni, "An N.I.E. Strategy Paper," National Institute of Education Planning Unit, Washington, D.C., April 1972, pp. 45-57.

Hypothesis: If authority patterns in education can be more responsive, then alienation will be decreased and involvement and motivation will be increased.

Approach: New forms of authority should be developed for the educational system that are more responsive to the changing nation and its citizens than the current ones. A major effort should be a mapping out of the issues and questions that need to be answered. For example, identification of patterns of authority that will be responsive to Americans and investigation of alternative methods for reducing the time lag so that educational institutions can better reflect wishes of nation. One specific subarea might produce a "negative-finding" report on open education--a critical review of the claims of open education. A general suggestion is that a 2-year planning project on future dialogue and research work should be established.

Scope: $.5-1.0 million per year for the planning project; $2-4 million per year to prepare reports on various types of authority patterns, including open classrooms in educational systems.

COMMUNITY EDUCATION AGENCIES

Document: B. Kooi, et al., "A Research and Development Agenda for the National Institute of Education," National Institute of Education Planning Unit, Washington, D.C., April 1972, pp. 172-186.

Assumptions: Develop "alternative governance and organizational mechanisms linking available resources to educational needs of various community groups." (1) No single institution can meet the educational needs of the entire community; (2) the nature of client groups changes rapidly; (3) an agency "must be a broker, not an owner, of resources"; (4) the agency must be able to respond to small, as well as large, groups.

Approach: A large-scale program of systematic variation should be established with three dimensions:

Governance: Functions of governance forms would be to distribute resources among client groups, identify and develop resources, and link individuals and groups in program development. Development of forms should vary with respect to degree of participation required, sanctions available, and resources controlled. Alternatives might include individual vouchers, town meetings, private consulting firms, etc.

Client groups: "Communities" should vary from individual families to large metropolitan areas. Experimentation with client classification should include work groups, neighborhoods, age groups, families, etc.

Functions: These should include both single-function agencies (e.g., consumer education for older people) and multifunction agencies, which would provide a range of social and educational services.

Scope: The program should begin on a small scale in receptive areas. Each experiment should encourage a flexible program that changes to meet current needs. A large portion of the

COMMUNITY EDUCATION AGENCIES (Continued)

funding should be allocated to independent evaluation and documentation "to support iterative improvements of the models developed." The general budget range over a 5-year period is $25-40 million; the first-year planning budget is $2.5 million.

INCENTIVE AND REWARD STRUCTURES

Document: S. Raizen, et al., "Research and Development in Education: Analysis and Program Development," National Institute of Education Planning Unit, Washington, D.C., April 1972, pp. 204-205.

Approach: Initiate a two-level effort to integrate the study of existing incentive and reward structures with the implementation of alternative structures. (1) Promote studies of current rewards and incentives in a wide variety of institutions of lower and higher education; (2) improve knowledge of the value systems of the personnel in these institutions; (3) experiment with alternative reward schemes (e.g., tax deductions for superior teachers in poverty schools suggested by Schrock, Singell, Yordon, et al.);* (4) experiment with different credentialing and promotion criteria on which present reward systems are based (e.g., performance-based criteria for teacher evaluation); (5) develop variations on performance contracting (e.g., "productivity contracting"--reducing the cost of attaining a given achievement level rather than increasing achievement at the present level of cost); (6) provide bonus schemes for student progress.

Scope: Indivduals involved should include economists, management experts, psychologists and sociologists, and assessment specialists. First-year costs would be $2 million, which would increase the following year to $5 million if the design of experiments proceeds at an appropriate pace.

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*N. Shrock, et al., "The Problem of Obtaining and Using Resources in Education: Some Proposed Programs for Purposive Change," paper submitted to the Commissioner, Planning Unit, National Institute of Education, Washington, D.C., December 1, 1971 (unpublished).

CHOICE AND DECISIONMAKING

Document: S. Raizen, et al., "Research and Development in Education: Analysis and Program Development," National Institute of Education Planning Unit, Washington, D.C., April 1972, pp. 201.

Objective: To increase external efficiency and distributional equity through creating alternatives that provide a better fit with students' needs and learning styles and with societal requirements.

Approach: Provide greater choice to consuemrs of education (students, parents, and communities) among alternatives and greater voice in determining what alternatives will be available. Increasing choice requires both the existence of alternatives and mechanisms for making choices among them. In order to provide useful information about alternatives, expand surveys of alternative schools and programs and plan contracts to assess a variety of the alternatives. Initiate cooperation with other agencies (e.g., Office of Economic Opportunity and vouchers) and begin design on new choice mechanisms. Begin development of appropriate information systems. Major contracts should be let for the assessment and understanding of the effects of alternatives in schooling and methods of exercising choice and consequences of specific choice. New experiments should be included in the assessment.

Scope: Approximately $3 million for the first year, increasing to $6 million for the second year to allow for starting one or two experiments both in creating alternatives and in decisionmaking mechanisms.

COMMUNITY EDUCATION COORDINATION CENTERS

Document: A. Etzioni, "An N.I.E. Strategy Paper," National Institute of Education Planning Unit, Washington, D.C., April 1972, pp. 67-72.

Hypothesis: If existing educational opportunities were better coordinated, more egalitarian and economical distribution of resources could be achieved.

Approach: Community Education Coordination Centers could be established with coordinated activities. A 2-year assessment of the potential of these centers could be made, including evaluation of the extent to which their function is preempted by SEA's and LEA's development of a few prototypes to conduct needs assessment, provide referrals for parents, students, and teachers to various education facilities and act as a pipeline to carry new programs and ideas from the NIE to community and vice-versa.

Scope: Amount not indicated. Each center would rely heavily on local manpower.

EXPERIMENTATION IN EDUCATION PRODUCTION

Document: S. Raizen, et al., "Research and Development in Education; Analysis and Program Development," National Institute of Education Planning Unit, Washington, D.C., April 1972, pp. 199-200; A. Etzioni, "An N.I.E. Strategy Paper," National Institute of Education Planning Unit, Washington, D.C., April 1972, pp. 73-84.

Approach: Investigate alternative mixes of management and instructional technologies to increase internal and/or external efficiency. Explore targets identified by various technology panels and develop the most promising to the implementation stage. Identify target sites and implement with appropriate support and evaluation. For optimal operation several projects should be carried on simultaneously, not all in the same phase, so that study can contribute to development and results of implementation and evaluation can stimulate further study. Projects must be coordinated so that a suitably wide range of media and staffing problems are fully explored.

Scope: Initial costs, $2-3 million for 2 years; as several projects become operational, however, the budget may be $25 million, allowing for 5 major projects and several in exploratory stages.

IMPROVED ASSESSMENT TECHNIQUES

Document: S. Raizen, et al., "Research and Development in Education: Analysis and Program Development," National Institute of Education Planning Unit, Washington, D.C., April 1972, pp. 196-198.

Assumption: It is necessary to define and assess desirable educational outputs over a broad range in order to understand the functioning and benefits conferred by the education system.

Approach: A major continuing effort should be launched to develop improved definition and assessment of educational objectives and outcomes from a variety of perspectives. Exploratory meetings should be held among evaluation and assessment specialists, including participants from testing and measurement as well as from fields using different techniques. Contractors should be encouraged to develop innovative techniques assessing complex cognitive skills and affective variables. Meetings should be held with representatives of various groups (disciplines, professions, ethnic groups, students, etc.) to develop improved definitions of educational objectives and explore problems concerning evaluation. In soliciting proposals, primary emphasis should be on developing improved assessment techniques and models of the education production function.

Scope: Approximately $5 million for the first year to include a wide variety of fields.

NEW ASSESSMENT MEASURES--EXPRESSIVE SKILLS

Document: A. Etzioni, "An N.I.E. Strategy Paper," National Institute of Education Planning Unit, Washington, D.C., April 1972, pp. 33-44.*

Assumption: If well-developed, reliable expressive skills tests and indicators are made available, expressive skills programs will be strengthened and advanced.

Approach: (1) International humanistic testing as developed by Husén; (2) "bigotry quotient" tests, suggested by Sizer, that could indicate strategies for remediation, and (3) extension of the current research on measures of creativity. The document suggests that instrumental skills testing should be improved--in collaboration with National Assessment and/or other sources--to develop measures of integrative and process ability. Nationwide and subpopulation indicators should be developed to "assess expressive achievement rather than those which measure quantities of pupils, buildings or funds."

Scope: Approximately $3-5 million per year for development of tests and trial runs in school systems; $2 million for indicators, assuming that the National Science Foundation continues to fund heavily in this area. "Highly qualified manpower which is available in several key centers" (not specified) should work under contracts, rather than grants, fully specified by the NIE

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*See also, R. M. Jaeger, "School Teating To Test the Schools," in *Proceedings of the 1970 Invitational Conference on Testing Problems*, G. V. Glass, chairman, Educational Testing Service, Princeton, New Jersey, 1970.

ACCOMPLISHMENT MEASURES

Document: E. Blake, "Draft of Curriculum R&D Suggestions, December 18, 1971," in W. Robinson (ed.), *Curriculum Development: Report of a Planning Conference of the National Institute of Education*, Washington, D.C., December 17-18, 1971 (unpublished).

Assumption: Diversification in assessment measures will promote diversification in curriculum development and in educational programs.

Approach: Longitudinal and cumulative assessment approaches should be developed to produce accomplishment (as opposed to achievement) measures. For example, one project might involve a "naturalistic study of a grade school where the major evaluation is at the end of six years and looks at *accomplishments*, say in the first year of junior high school." This approach "is desperately crucial in education of the disadvantaged."

DATA COLLECTION AND ANALYSIS FOR SCHOOLS THROUGHOUT THE SCHOOL SYSTEM

Document: D. Rogers, *110 Livingston Street*, Random House, New York, 1968.

Thesis: Many kinds of relevant data (e.g., teacher and principal performance measures) are not collected and often even the data that are collected are not used to evaluate schools and programs.

Approach: A coordinated system of data collection is recommended which would include standardized assessment instruments and a sharing of data collected by various agencies. Also suggested is a more thorough analysis of the data including how variations in pupil achievement are associated with variations in class size, staff training, experience and backgrounds, staff-pupil ratios, classroom composition, and money spent per pupil.

IV. INITIATIVES DIRECTED TO THE R&D SYSTEM

52/53/54

UNDERSTANDING AND SUPPORTING EMERGING INNOVATIONS

Document: S. Raizen, et al., "Research and Development in Education: Analysis and Program Development," National Institute of Education Planning Unit, Washington, D.C., April 1972, pp. 97-100.

Hypothesis: If important emerging innovations are supported carefully, then evaluation of their effectiveness can be much more reliable and useful.

Approach: Take advantage of naturally occurring experiments to build the knowledge base and assess the effectiveness of promising approaches to education. (1) Establish criteria for success; (2) closely monitor successful examples to determine how the innovation works (e.g., case studies of students, anthropological observation of the classroom culture, psychological observation of teacher attitudes, sociological analysis of parent and community support); (3) articulate the theory behind the innovation; (4) determine support strategies necessary for successful replication of the innovation; (5) design specific experiments to incorporate these strategies, the theory, and the successful elements observed to replicate the innovation. Three current emerging innovations were suggested for this program: open classrooms, alternative schools, and accountability (including performance-based assessment criteria and performance contracting).

Scope: For open classrooms, $1 million for the first year, increasing to $3-5 million, depending on the number of sites to be assessed and the new experiments to be initiated.

MULTIDISCIPLINARY DESIGN OF ALTERNATIVE EDUCATIONAL PROGRAMS

Document: S. Raizen, et al., "Research and Development in Education: Analysis and Program Development," National Institute of Education Planning Unit, Washington, D.C., April 1972, pp. 142-146; D. Miller, "Psychology and the National Institute of Education," National Institute of Education Planning Unit, Washington, D.C., 1971.

Approach: Design and test comprehensive educational programs, on the level of an entire school or school system, bringing in multidisciplinary groups including psychologists, sociologists, economists, management scientists, etc. Each design will make its parameters explicit and will synthesize the knowledge and perceptions of the fields from which the participants come. This differs from the OE/NIE Experimental School project by not arising out of local districts and by giving greater attention to development.

Scope: Approximately 5 to 8 planning grants for $.1 million each; the following year, 3 to 5 development grants for $1 million each.

ANTHROPOLOGICAL AND SOCIOLOGICAL STUDIES OF TEACHERS, SCHOOLS, AND COMMUNITIES

Document: S. Raizen, et al., "Research and Development in Education: Analysis and Program Development," National Institute of Education Planning Unit, Washington, D.C., April 1972, pp. 154-158.

Assumption: If more can be learned about nonschool variables that affect school achievement, school practices and procedures can be modified on the basis of that knowledge to improve achievement.

Approach: Investigate the relationships between school and community variables, particularly poor communities, to better understand the shortcomings of the schools. Program guidelines will spell out the focus of research to be conducted, but most projects will be selected from unsolicited proposals addressing the program objectives. Since studying the poor is a highly sensitive practice, research proposals will be evaluated on the degree of cooperation likely by participating schools and communities, in addition to the usual criteria. One promising area for study might be those communities with projects such as Head Start or Follow Through.

Scope: A minimum of $2 million for the first year; costs rise rapidly thereafter if extensive community investigations are undertaken. An advisory and evaluation group drawn from many disciplines is crucial to the success of the proposal so that a variety of perspectives and research methodologies will be represented.

STRATEGIES FOR EDUCATIONAL POLICY ANALYSIS

Document: H. A. Averch, et al., *How Effective is Schooling?*, The Rand Corporation, R-956-PCSF/RC, March 1972.

Recommendations:

1. Merge various research approaches.
2. Develop new educational measures to "measure education in relation to many more outcomes and dimensions (including time) than is currently being done."
3. Include cost considerations in the analyses.

Scope: Not indicated, except that in order to focus on outcomes over time, it will be necessary to develop "some permanent institutional arrangement that will keep the long-run research policy relevant."

NATIONAL DISCOURSE ON EDUCATION

Document: W. Robinson (ed.), *Curriculum Development: Report of a Planning Conference for the National Institute of Education*, Washington, D.C., December 17-18, 1971(unpublished).

Approach: Assemble distinguished groups of lay citizens to review the state of some aspect of education "with a view to promoting a high level of public discourse on the purposes and conditions of public education." These groups--with the prestige of Presidential Commissions--would examine "all the substantive questions of value, priorities, style, purpose, and methodology that have yet to be addressed in a coherent manner at a national level." The groups should include a professional educators and members of local communities to ensure as wide and well-informed an audience as possible.

RESEARCH ON THE SOCIETAL CONTEXT OF EDUCATION

Document: O. W. Markley, et al., "Future-Oriented Program Alternatives for the National Institute of Education," National Institute of Education Planning Unit, Washington, D.C., April 1972.

Approach: "If education is to adequately serve the needs of the larger society, the broader societal context must be considered in educational planning and policy analysis." Four major areas of work are suggested:

1. Holistic analysis of society: A long-term effort in "investigating the present condition of society and its likely [plausible] futures." The NIE should not attempt to develop its own methodologies in this area, but rather should support analysis and integration of knowledge as it becomes available in already developed centers of expertise such as the Education Policy Research Centers (EPRC), Rand, the Hudson Institute, etc. Topics for research might include ways that schooling might better utilize nonschool educational resources, the expanding role of international education, and the role of the voluntary sector in societal problemsolving.

2. Analysis of trends and events: Identification of key issues to consider in educational R&D policy. Particular attention should be paid to improving the development and use of social indicators "to provide a better empirical basis on which to evaluate social trends." Topics for future trend analysis might include education and race relations "beyond integration"; transition from a production-oriented to a service-oriented economy; and student unrest and confrontation politics.

3. Anticipatory needs assessment: identification of personal and societal needs in terms of needed knowledge and skills, and identification of needs of the educational (including R&D) system. This program should

RESEARCH ON THE SOCIETAL CONTEXT OF EDUCATION (Continued)

be based on the results of the two preceding program elements (holistic analysis and analysis of trends and events). Topics might include an investigation of the extent to which diversity is needed in education, and assessment of curricula that are becoming outmoded. The Center for Policy Research (New York) and the Center for Educational Policy Research (Harvard) have near-term assessment capabilities; EPRCs at Syracuse University Research Corporation and Stanford Research Institute have longer-term assessment capabilities.

4. Policy implications: Assess plausible social consequences of present or proposed policies for both research strategies and operational applications. Topics for analysis should reflect the results of the above three program elements as well as models of the policy process, analysis of indirect consequences, and analysis of the reform process.

Scope: Holistic analysis, $.5 million; trend analysis, $.6 million; anticipatory needs assessment, $.1 million; policy implications, $1.0 million. An additional $.8 million could be allotted for dissemination and $1 million for unsolicited research--total: $4 million for initial annual funding.

NATIONAL POLICY CONSIDERATIONS IN EDUCATION

Document: National Goals Research Staff, *Toward Balanced Growth: Quantity with Quality*, U.S. Government Printing Office, Washington, D.C., July 4, 1970.

Thesis: Policymakers must develop a "process for the formulation of an adaptive strategy for guiding the educational system in harmony with the transitions of the other sectors of society." This document identifies four major issues for consideration:

1. Social and personal relevance: what is an appropriate mix of relevance and transmission of the culture?
2. Equality of opportunity: what nonschool variables can and should be affected to move toward equality of educational opportunity?
3. Finance: What are the most equitable financing plans?
4. Understanding of the educational process: what can be done to articulate the learning process and the management of the educational system in its interaction with other sectors of soceity, and how can we enable students to adapt to a changing world?

THE CONCEPTUAL FRAMEWORK OF THE SCHOOLING PROCESS

Document: D. Cohen, "The National Institute of Education: What Can be Expected?" National Institute of Education Planning Unit, Washington, D.C., April 1972.

Thesis: There is no general conceptual framework for the process of schooling "which more or less squares with the evidence."

Approach: "Research and experimentation designed to elaborate and test alternative theories of the schooling process" should be carried out in these steps. First, specify alternative models. This should include reappraisal of schooling as a production process; other theories might include schooling as a sorting mechanism, schooling as exposure to a "climate," or schooling as the "embodiment of essential social symbol systems" such as our attitudes toward social integration. Second, determine the evidence required to test the models. Third, design research to yield the desired information.

Outcomes: The process of articulating and analyzing alternative models "would increase the probability that knowledge in education would be cumulative." It would provide a focus for ordering both federal and nonfederal R&D priorities. It would provide helpful direction for development and evaluation. And it would avoid investing large sums of R&D money in problemsolving programs based on weak or faulty conceptions of schooling.

APPROACHES TO EDUCATION: ANALYSIS AND SYNTHESIS

Document: A. Etzioni, "An N.I.E. Strategy Paper," National Institute of Education Planning Unit," Washington, D.C., April 1972, pp. 27-32; S. Raizen, et al., "Research and Development in Education: Analysis and Program Development," National Institute of Education Planning Unit, Washington, D.C., April 1972, pp. 101-103.

Hypothesis: If a systematic analysis of how to realize output goals and of lacunae in current research is made available in the form of "guides to action," educators and researchers will be better able to achieve those goals.

Approach: Apply principles of systems analysis to increase knowledge about how to realize output goals and make it available to parents, educators, and researchers. (1) Determine main approaches currently in use; (2) collect cost-effectiveness data; (3) compare relative merits of programs and research strategies operating under different conditions; (4) determine lacunae in current research; (5) on the basis of previous steps, determine how lacunae may best be studied. Within 2 years, issue a guide for action for each output goal. (Etzioni suggests the following output goals: prepare child to evaluate and utilize information; prepare child for a wide range of career pursuits and life-styles; develop child's capacity to lead to full and just life.)

Scope: A task force of highly qualified people familiar with the field and able to synthesize large bodies of knowledge: $.75 million for FY 1973, $1.5 million for FY 1974.

SYSTEMATIZATION AND ANALYSIS OF KNOWLEDGE ABOUT EDUCATION FOR THE POOR

Document: S. Raizen, et al., "Research and Development in Education: Analysis and Program Development," National Institute of Education Planning Unit, Washington, D.C., April 1972, pp. 159-162.

Approach: Produce a growing and changing compendium, including current research findings, the state of the educational system as it relates to the particular client group (in this case, the poor), and current relevant research plans of federal, and possibly other, agencies. Conduct meetings with planners and researchers who know the field to discuss formats and contents of the program. This program might be run inside the NIE by a person with a broad view of educational R&D. The intramural research component would feed into this as would the results of extramural programs. The compendium should be updated yearly.

Scope: Approximately $.5 million for the original compendium; $.1 million for each yearly update.

LINKAGES BETWEEN THE R&D SYSTEM AND PRACTITIONERS

Document; A. Etzioni, "An N.I.E. Strategy Paper," National Institute of Education Planning Unit, Washington, D.C., April 1972, pp. 85-91.

Approach: Increase the linkages between the NIE or the educational R&D system and local units: (1) create a national NIE advisory board with representatives from all states; (2) hold regional conferences; (3) develop a continuous training center for local administrators and educators at the NIE or in regional centers; (4) develop other means in consultation with local authorities. Although this is primarily an action program, there would be a definite need for research in dissemination methods to provide a theoretical framework for the program.

Scope: The NIE staff and local educators should be directly in charge. Costs cannot be estimated until the program is better defined.

INCREASING THE EFFECTIVENESS OF THE EDUCATIONAL R&D SYSTEM

Document: O. W. Markley, et al., "Future-Oriented Program Alternatives for the National Institute of Education," National Institute of Education Planning Unit, Washington, D.C., April 1972.

Approach: Given the decentralized character of American education, local level strategies are needed to balance agency-based R&D management strategies at the federal level. Two program initiatives are proposed:

1. Decentralized market mechanism: provide federal funding of incentive contracts for the development of public and private market capabilities for products and processes with a high degree of adaptability; provide LEAs with categorically earmarked discretionary funds for the purchase of the above services; train and provide Educational Extension Agents "to help LEAs become 'good choosers' and 'wise consumers'"; develop a clearinghouse of vendor information and a consumer-oriented better business bureau. Examples of services that might be offered include operations research to diagnose problems, select and install innovations, or install new school/classroom management systems.

2. Programs to increase the local incentive to innovate: provide change-agent training, perhaps tied to LEAs with funds to purchase R&D services; develop social marketing approaches--public service advertising campaigns stressing the importance of education; develop voluntary sector approaches--development of incentives and organizational techniques at the local level to stimulate community involvement in education.

Scope: Not indicated.

RESEARCH ON THE R&D SYSTEM

Document: J. V. Baldridge and R. Johnson, "The Impact of Educational R&D Centers: An Analysis of Effective Organizational Strategies," National Academy of Education, Washington, D.C., February 1972; E. Blake, "Draft Curriculum R&D Suggestions December 18, 1971," in W. Robinson (ed.), *Curriculum Development: Report of a Planning Conference for the National Institute of Education*, Washington, D.C., December 17-18, 1971 (unpublished).

Approach: Develop knowledge about the "discipline" of applied social science research, a long-range program within the R&D network to study the reward structures, project management, staffing patterns, and other problems associated with educational R&D and applied policy research. Study to delineate the *range* of topics addressed by the network of laboratories and centers. If this study indicates a narrow range, experimentation in broadening it should be instigated.

THE CONTEXT OF CURRICULUM DEVELOPMENT

Document: W. Robinson (ed.), *Curriculum Development: Report of a Planning Conference for the National Institute of Education*, Washington, D.C., December 17-18, 1971 (unpublished).

Approach: Careful studies of existing educational environments (classroom to community) should be initiated to better understand the complex interactions between these environments. Particular attention should be paid to the identification, examination, and support of schools or programs that are effective. The curriculum development process itself should also be studied--the roles of various funding agencies, the social environment in which it takes place, the kinds of people attracted to the profession, constraints imposed on developers, etc.

GUIDELINES FOR RESEARCH STRATEGIES IN EARLY CHILDHOOD R&D

Document: M. Sterns, et al., "Toward Interagency Coordination: An Overview of Federal Research and Development Activities Relating to Early Childhood and Recommendations for the Future," Interagency Panel on Early Childhood Research and Development, Washington, D.C., October 1971.

Approach:

1. A broad scope to include all, not just "disadvantaged," children and develop pluralistic programs and assessment instruments.
2. Research on the "total child"--reduce the focus on separate processes of child development.
3. Research on the total life space of the child--the interrelationships among all environmental factors.
4. Fundamental research that contributes to theories of growth and development.
5. Social policy research--"relative merits of various intervention programs must be compared."
6. Longitudinal research.
7. Studies to improve the research process itself: goal-oriented research studies should be developed to identify "appropriate goals for child development." These studies can be used to determine related goals for R&D. New research methodologies should be developed--new behavioral observation techniques and assessment instruments--"methods to evaluate the relationships between specific research variables or program characteristics [inputs] and specific results or outcomes." The results of the research should be disseminated, including feedback of information from users to researchers and work on developing a proven "model" or "demonstration" program for national implementation.

V. BASIC RESEARCH

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BASIC ISSUES IN SOCIOLOGY: EDUCATIONAL INEQUALITY

Document: B. Clark, "Sociology and the Study of Education: Report of a Planning Conference for the National Institute of Education," National Institute of Education Planning Unit, Washington, D.C., 1971.

Issues: Educational inequality--explore the relationship between the structure of opportunities and the structure of rewards: the effect of status differentials within the educational system. With reference to compensatory programs, the stigma involved in programs is directed solely at the bottom strata. In looking at the "gatekeeper" function of education, consider the degree of meritocracy possible in nonschool world. Consider also the role of the family in education: if equality of educational opportunity cannot be achieved except at the expense of the family, are we ready to diminish the family? Educational diversity--how is it possible to create institutional variety and resilience?

Educational achievement--we must understand the tension between populism and elitism in order to achieve the dual goals of equality and achievement.

Educational personnel--examine "the vulnerabilities of the career and social position of American teacher."

Approahces: R&D based on the natural setting of teaching. Challenge assumed centrality of schooling in formal socialization. Find the best practices, analyze and capitalize on them.

BASIC ISSUES IN SOCIOLOGY: ADMINISTRATION AND CONTROL OF SCHOOLS

Document: L. Cronbach and P. Suppes, *Research for Tomorrow's Schools: Disciplined Inquiry for Education*, The Mac-Millan Company, London, 1969, pp. 262-264.

Issues: (1) A study of the administrative organization and control of schools, including interaction among local, state, and federal decisions and the impact of this apparatus on methods for bringing about change in education; (2) better articulation of the role of social psychology of the classroom and the relationship between trends in adolescence (e.g., alienation) and educational problems; (3) dynamic models of social change in educational institutions; (4) research on the effects of various modes of organization on students and the effectiveness of their learning; (5) quantitative studies examining factors that affect achievement in schools taking account of variables not previously studied by Coleman and others; (6) analyses of the relationships between school systems and other social systems; and (7) investigation of the extent to which the character and impact of school systems is determined by surrounding social systems and social structure.

BASIC ISSUES IN EDUCATIONAL PRACTICE AND ORGANIZATION OF SCHOOLS

Document: L. Cronbach and P. Suppes, *Research for Tomorrow's Schools: Disciplined Inquiry for Education,* The Macmillan Company, London, 1969.

Issues: (1) Analytic and systematic studies of the total school environment and organization, including interactions between formal school organization, pupil-teacher relationships, age and ability groupings, etc.; (2) development of an understanding of the impact of formal education on students and a deeper understanding of the limitations of formal education; (3) a study of the characteristics favoring adoption of innovation and the most important parameters to be controlled in instituting change; and (4) study of how to organize work loads and careers of teachers in order to facilitate their continued development and learning and to utilize them in the most effective way.

BASIC STUDIES IN ECONOMICS

Document: S. Raizen, et al., "Research and Development in Education: Analysis and Program Development," National Institute of Education Planning Unit, Washington, D.C., April 1972, pp. 206-209.

Objective: Create a body of knowledge and conceptual framework for understanding causal relationships in educational efficiency and effectiveness.

Examples: 1. Education production process: theoretical work on integrating psychological and economic models of input-output relationships; studies of productivity trends in education (historical changes, productivity of proprietary schools, successful schools operating with average budgets); studies of the ways in which schools respond to high levels of financial pressures and of concomitant effects of learning.

2. External efficiency: follow-up studies in a variety of institutions of higher education to estimate supply and demand schedules, rates of return, income level, and probability of employment for students of different institutions; a study of the relationship between education and specific social indicators such as worker productivity, health, voting behavior, etc., to determine how the areas studied are affected by schooling.

3. Distributional equity: research on alternative strategies of school finance, including the impact of various strategies on the incentives of schools and teachers in terms of productivity and meeting the needs of the community; research on the extent to which education can affect redistribution of income; continued statistical analysis of the extent of resource inequality across geographical regions, economic classes, races, and sexes.

Scope: Costs could range from $.5 million to several million dollars, depending on whether extensive longitudinal and retrospective studies using large samples are included.

BASIC ISSUES IN ECONOMICS

Document: L. Cronbach and P. Suppes, *Research for Tomorrow's Schools: Disciplined Inquiry for Education,* The Macmillan Company, London, 1969, pp. 257-258.

Issues: (1) Synthesis of theories of human capital and its integration and theories of physical capital into a general theory of economic growth; (2) studies of efficient allocation of investment resources; (3) investigation of the relationship between labor market discrimination and the effects of this discrimination on the motivation of students in schools; (4) development of a better understanding of the relationships between pecuniary and nonpecuniary attractions of work and patterns and causes of mobility both in the teaching profession and outside the teaching profession; (5) a cost-benefit analysis of alternative resource allocation; (6) a study of the income productivity of learning in different disciplines and professions; and (7) investigation of the economic effects on students of leaving school at various ages.

BASIC ISSUES IN HISTORY

Document: L. Cronbach and P. Suppes, *Research for Tomorrow's Schools: Disciplined Inquiry for Education,* The Macmillan Company, London 1969, p. 259.

Issues: (1) Studies of the changing emphasis in the institutions contributing to and responsible for education of children, including assessment of past and present relative emphasis on schools in determining the attainment of the young, and (2) a history of the development of key notions about education--both philosophical and theoretical.

BASIC ISSUES IN PHILOSOPHY

Document: L. Cronbach and P. Suppes, *Research for Tomorrow's Schools: Disciplined Inquiry for Education*, The Macmillan Company, London, 1969, pp. 259-260.

Issues: (1) Studies concerning educational aims and how they are determined and formulated--the extent to which empirical research resolve problems in educational theory; (2) examination of the relationship of concepts of justice and equality to factual data on the presence or absence of equality in schools and equality in educational opportunity; (3) analytic studies of central educational concepts; (4) applications of philosophical studies of foundations of curriculum areas; and (5) analytic studies of methodological issues in applying science to practice.

BASIC ISSUES IN PSYCHOLOGY

Document: L. Cronbach and P. Suppes, *Research for Tomorrow's Schools: Disciplined Inquiry for Education*, The Macmillan Company, London 1969, pp. 261-262.

Issues: (1) Intensive studies of the impact of early experience on later predispositions to learn (especially interaction of mass media and schooling); (2) studies in learning, memory, and attention as they relate to the organization of curriculum and subject-matter learning; (3) investigation of the psychological foundations of individual difference; (4) development of an understanding of significant motivational variables and how to control them to increase the efficiency of learning; and (5) a review of the failures of previous psychological research to lead to a significant educational technology.

VI. R&D ISSUES RAISED AT THE NIE HEARINGS

R&D OPERATION IN EDUCATION

Document: F. S. Chase, "Educational Research and Development in the Sixties: A Mixed Report Card," in *Educational Research: Prospects and Priorities*, Appendix 1 to Hearings on H.R. 3606 and Related Bills To Create a National Institute of Education Before the Select Subcommittee on Education, Committee on Education and Labor, House of Representatives, U.S. Government Printing Office, Washington, D.C., January 1972.

Objective: Survey the current views of a number of participants in and observers of R&D operation in education.

Approach: Collect data from questionnaires sent to 120 persons (50 R&D organization employees--directors of educational R&D centers, directors of regional educational labs, etc.; 70 non-R&D staff persons--state school officials, local school administrators, university deans, etc.). Five questions were asked:

1. What do you regard as the chief achievements of educational R&D?
2. What have been the chief obstacles to effective operations?
3. What steps are most vital to increase the effectiveness of educational R&D?
4. What are the most valuable lessons to be learned from our experience with educational R&D up to this time?
5. What is your general assessment of the major strengths of educational R&D at the present time?

Results: Received 78 replies with at least 50 percent representation from each category of respondent except "local school administrators," which produced less than 30 percent. There was agreement between R&D staff and non-R&D staff respondents that major impediments to systematic, large

R&D OPERATION IN EDUCATION (Continued)

scale educational R&D include the lack of tested models or theories, validated knowledge to guide setting of objectives, experienced/trained personnel, managerial capacity, proven strategies for interagency cooperation, and consensus on results achievable.

Recommendations:

1. Better provisions for national planning and management.
2. Greater attention to interagency relationships.
3. Resource commitments on a stable, long-term basis.
4. Stepping up of provisions to increase understanding of educational R&D.
5. Improved provisions for the training of educational R&D personnel.

CLASSROOM TEACHERS AND EDUCATIONAL SCHOLARS

Document: A. H. Yee, "Classroom Teachers and Educational Scholars: The Problem of Getting Them Together," in *Educational Research: Prospects and Priorities*, Appendix 1 to Hearings on H.R. 3606 and Related Bills To Create a National Institute of Education Before the Select Subcommittee on Education, Committee on Education and Labor, House of Representatives, U.S. Government Printing Office, Washington, D.C., January 1972.

Thesis: "There exists a lack of relationship between the professional orientations of classroom teachers and educational scholars and they are incompatible. As schools are organized and maintained today, the quality of teaching is severely limited and rational models of teaching may be inappropriate. Thus scholars and teachers differ because their roles, functions and expectations are contradictory."

Summary: The document contains a brief review of the historical context of role differentiation between teacher and scholar, discusses teacher preparation and its "quantity rather than quality" orientation, and briefly develops the theme that teaching is perceived as a feminine profession in America, which indicates the transient nature of teaching as a career and its less-than-adequate professional development. It is noted that, although the social system of schools may be characterized as feminine, the academic world (that of the "educational scholars") is masculine. The document concludes that the only thing classroom teachers and educational scholars have in common is their "general abstract concern for schools."

Recommendations:

1. Because of their leadership role and control of teacher education, educational scholars must begin to overhaul teacher preparation completely and build appropriate training systems.
2. Teacher standards and curricula must be revised and

CLASSROOM TEACHERS AND EDUCATIONAL SCHOLARS (Continued)

the traditional classroom relationship between teachers and students replaced by a system of "instructional teams" led by "master teachers" (i.e., those with a Ph.D. in education). This team structure would provide (a) new techniques and work relations, (b) a vertical leadership which would bridge the gap between scholar and practitioners, (c) a means of abolishing oppressive school organization, (d) a means of providing peers evaluation, and (e) the "opportunity for schools to become producers as well as consumers of R&D.

INDIVIDUALIZED INSTRUCTION

Document: J. V. Elding, "An Overview of Individualized Instruction," in *Educational Research: Prospects and Priorities*, Appendix 1 to Hearings on H.R. 3606 and Related Bills To Create a National Institute of Education Before the Select Subcommittee on Education, Committee on Education and Labor, House of Representatives, U.S. Government Printing Office, Washington, D.C., January 1972.

Thesis: If optimum education for each child is to be realized, more consideration must be given to both objectives and methods of instruction for individual learners.

Approach: Defines principles of individualized instruction (individual orientation and pacing), describes various types of school-determined and learner-selected approaches, reviews evidence of its effects on individualization of learning gathered from studies of (1) formal test evidence, (2) participant reaction, (3) disciplinary records, and (4) truancy and drop-out rates.

Conclusions: There are two major obstacles slowing the general adoption of the concept of individualization:

1. Teacher retraining.
2. Obtaining effective instructional materials.

Recommendations:

1. The NIE, working cooperatively with the state educational agencies, could help develop "appropriate systems" which would permit the "diversity of approaches" recommended by the Commission on Instructions Technology.
2. Extensive evaluation will be necessary after significant change has taken place in education.

STATEWIDE ASSESSMENT AND EDUCATIONAL REFORM

Document: H. S. Dyer and R. J. Solomon, "Statewide Assessment: Its Future and Potential for Educational Reform," in *Educational Research: Prospects and Priorities*, Appendix 1 to Hearings on H.R. 3606 and Related Bills To Create a National Institute of Education Before the Select Subcommittee on Education, Committee on Education and Labor, House of Representatives, U.S. Government Printing Office, Washington, D.C., January 1972.

Thesis: You cannot discern how a system, or any phase of it, is functioning by looking solely at the students as they emerge from it.

Approach: Three factors must be known to measure the effectiveness of educational systems: the type of relationships that exist between students' characteristics when they enter and when they leave any particular phase of schooling; the influences (home, community, etc.) which exist outside the school; and what goes on inside the system that is educationally productive.

Recommendations: Six main purposes that a statewide assessment should serve are:

1. It should provide the teachers and administrators in every school system with basic information for assessing all the principal phases of their educational programs in sufficient detail to indicate the specific steps required for continually strengthening those programs.
2. It should provide the state authority with basic information needed for allocating state funds and professional services in a manner best calculated to equalize educational opportunities for all children in all school systems of the state.
3. It should provide research agencies at both state and local levels with data for generating and testing hypotheses concerning the improvement of all aspects of the educational process.

STATEWIDE ASSESSMENT AND EDUCATIONAL REFORM (Continued)

4. It should provide every school system with strong incentives to experiment, under controlled conditions, with new and promising education programs, materials, devices, and organizational arrangements.
5. It should periodically provide the state legislature and the general public with readily interpretable information concerning the progress of the state system of education as a whole and as part of each local system.
6. It should provide basic information for helping every student in the state assess his own progress through the education system of the state, so that he can become increasingly mature in understanding himself, his education needs and his future possibilities.

SOCIAL ACCOUNTING IN EDUCATION

Document: D. K. Cohen, " Social Accounting in Education: Reflections on Supply and Demand," in *Educational Research: Prospects and Priorities,* Appendix 1 to Hearings on H.R. 3606 and Related Bills To Create a National Institute of Education Before the Select Subcommittee on Education, Committee on Education and Labor, House of Representatives, U.S. Government Printing Office, Washington, D.C., January 1972

Thesis: The two central political problems of social accounting in education are the "dramatic absence of much institutional demand for the information and the lack of much consumer capacity to manage, control, or digest the products or social accounting. The most important issue is not how to establish new information systems, but how to assure that the systems' products would have some other purpose than the amusement and occupation of people like ourselves."

Approach: (1) Discusses (a) reasons for the absence of demand for social accounting (the absence of any incentives internal to the school systems which would create a demand for the products; (b) the absence of any countervailing forces which might use new information to affect school policy, or use their influence to affect the school's information use); and (2) suggests three consequences of greater supply: (a) information about technological improvements would be produced and would generate their own pressure for adoption; (b) inequities in educational outcomes and the allocation of resources would be revealed, thereby multiplying pressure for change; (c) social accounting would become a countervailing information source, challenging the school's monopoly in this area.

Recommendations: The following are recommended to stimulate greater demand:

1. Change the constraints or "production" in education, so that schools are rewarded in proportion to the value

they add to students' performance, thus strengthening the position of consumers and clients (i.e., parents with respect to information about schooling.

2. Establish countervailing centers of beaureaucratic power to improve the schools' use of information and serve as a consumer protection mechanism. This might involve creating sizeable in dependent staffs for local boards of education.

3. Establish consumer choice in education--mechanisms that would counteract the exclusion of consumer interests in items 1 and 2 above; permit small groups to receive state subsidies to establish public schools, eliminate zoning requirements for public schools, permit community or other groups to subcontract with the existing school system to operate all or part of a school, and give parents tuition vouchers which would allow them to choose among existing schools or form new ones.

THE ROLE OF THE NATIONAL INSTITUTE OF EDUCATION

Document: W. W. Harman and T. C. Thomas, "A Crucial Role for the National Institute of Education," in *Educational Research: Prospects and Priorities*, Appendix 1 in Hearings on H.R. 3606 and Related Bills To Create a National Institute of Education, Before the Select Subcommittee on Education, Committee on Education and Labor, House of Representatives, U.S. Government Printing Office, Washington, D.C., January 1972.

Thesis: The nature of the questions that must be addressed by the NIE implies two significant differences between the anticipated work of the NIE and most past scientific and educational research: (1) educational issues must be examined in the context of broad societal issues and problems, and (2) exploration of those issues is essentially a moral inquiry, for education is always directed to some end.

Approach: Five reasons are given to support the investigation of the societal context of educational issues: (1) educational problems are components of pervasive social problems; (2) all of society educates; (3) educational actions are constrained by society; (4) limited formulation of a problem may limit the range of means sought for its resolution; and (5) optimizing the achievement of subsystem goals without reference to the larger societal goals may not be most advantageous or sufficient. Educational research is viewed as essentially a moral inquiry because "the central purpose of education is to enable persons to function within the social context of their time" and "the ultimate goal of the educational system, as it is of the nation, is the well-being and self-fulfillness of the individual."

Examples of Research Questions: 1. What changes would help to reduce inertias and

THE ROLE OF THE NATIONAL INSTITUTE OF EDUCATION (Continued)

rigidities in the education system and foster a greater degree of experimentation and an ability to meet problems with adaptive change?

2. What educational objectives can be inferred from present education practices and results and how do they look in terms of the kind of world the child will live in as an adult?

3. What, in terms of those objectives, are the most satisfactory models of human growth and learning?

4. To what extent may present education objectives, philosophies, and practices be contributing to the occurrence or severity of such problems as ecological irresponsibility, racial prejudice, etc?

5. What are some of the alternative ways that education can be structured in order for business and industry, government, schools, the media, the courts and prisons, etc., to be considered together as one vast educating system?

6. What educational functions should the formal education system emphasize and how can those functions best be accomplished?

7. How, in view of the changing work environment, can a planned evolution of the structure and function of vocational, continuing, adult, or higher education best take place?

8. What are the comparative advantages and disadvantages of retaining the present sorting, labeling and gatekeeping functions of education?

9. What are the present patterns of rewards and sanctions in the education system, especially with regard to experiences and innovation, and what are the feasible modifications?

10. What sorts of changes will be necessary in the schools to restore a widespread feeling of legitimacy?

THE ROLE OF THE NATIONAL INSTITUTE OF EDUCATION (Continued)

11. What are the alternative choices with regard to increasing the accountability of the education system and what are the basic issues involved in making the choice?

IMPLICATIONS FOR RESEARCH FROM MINORITY STUDENT EXPERIENCES

Document: J. A. Davis, "The Desegregation/Integration Dilemma in Higher Education: Implications for Research from Minority Student Experiences," in *Educational Research: Prospects and Priorities*, Appendix 1 to Hearings on H.R. 3606 and Related Bills To Create a National Institute of Education Before the Select Subcommittee on Education, Committee on Education and Labor, House of Representatives, U.S. Government Printing Office, Washington, D.C., January 1972.

Thesis: "Neither the traditional freedom of choice of college . . . nor vigorous efforts by the institutions, nor federal pressures have removed the color line in institutions of Higher Education to any degree." Two significant issues for Higher Education are (1) "Changing those subtle but real social and personal forces that prompt cultural minorities . . . to apply, if at all, to institutions that traditionally accept them; broadening perceptions and vistas of higher educational opportunity; improving access for minority students"; (2) "Effectively accommodating atypical students through the creation and provision of learning environments that are conducive to harvest growth and development for cultural minorities, whatever their deficiencies."

Approach: The results of 1969-1970 survey of racial minority students on a number of campuses are reported. Freshmen were asked why they had chosen their particular colleges, what expectations and anxieties they may have had prior to enrollment, and what they had found and experienced.

Findings:

1. It was not possible to identify a sufficient number of white students in traditionally black colleges, so the interviews focused on black students in traditionally white campuses.
2. Reasons for choices of college: restriction of geographic mobility; publicity generated by nationally ranked

IMPLICATIONS FOR RESEARCH FROM MINORITY STUDENT EXPERIENCES (Continued)

black athlete at the school; good offer of financial aid; (no strong evidence of the influence of parents or a guidance counselor). Underlying these reasons in most cases was a "white is good" bias, in which acceptance by white college was viewed as a sign of special status.

3. Black students' experiences: experience in the white senior college or university in most cases seems to lead the student toward an increasing awareness of his blackness, toward an identify with other balck people. There were some striking exceptions, particularly students from 2-year public institutions, which may reflect the community and nonresidential nature of the schools.

Recommendations: The NIE must assume some leadership role in implementing R&D activity directed toward:

1. More effective pre-college preparation of the disadvantaged.
2. More effective recruitment of the disadvantaged to higher education through studies of the factors that motivate the disadvantaged to choose "atypical" higher-education settings.
3. More realistic orientation of the disadvantaged to the opportunity of higher education and to the demands higher education will make.
4. More effective education and social and personal treatment of the atypical student in institutions of higher education.
5. Determination of better administrative and management strategies for higher education in providing for the needs of all students.
6. Effective resolution of the problem of helping the traditionally black institution to become an equal partner in the national higher education enterprise.

WOMEN IN EDUCATION

Document: P. A. Graham, "Women in Academe," in *Educational Research: Prospects and Priorities*, Appendix 1 to Hearings on H.R. 3606 and Related Bills Create a National Institute of Education Before the Select Subcommittee on Education, Committee on Education and Labor, House of Representatives, U.S. Government Printing Office, Washington, D.C., January 1972.

Approach: Data on the current situation of women in academe shows that (1) a disproportionate number of the 18 percent of women on college and university staffs are in fields other than education, social service, home economics, and nursing; (2) women constitute 40 percent of the undergraduate student body and receive 10 percent of the doctorates; (3) 2 percent of the full professors are women; (4) women who receive their Ph.D. are likely to use it in a professional capacity (91 percent of 1957-1958 women Ph.D.s were employed in 1964); (5) married women Ph.D.s employed full time publish slightly more than either men Ph.D.s or unmarried women Ph.D.s: salaries received by married women in general were 70 to 75 percent of those received by men at the same interval after receipt of the doctorate.

Possible Explanations: Seven possible reasons for this disparity are briefly examined: overt discrimination; internal ambivalence (psychological-cultural doubts about combining career and family; womens' own low aspirations and expectations); publication (women not publishing as much as men because they are not put into positions in which it is required); time (conflict of professional-domestic time demands); "the suburban syndrome" (social custom and lack of domestic help); the "nepotism rule."

Suggested Corrective Measures: 1. Appointment of women to senior faculty and administrative posts.

WOMEN IN EDUCATION (Continued)

2. Part-time professional appointments for women.
3. Maternity leave provisions.
4. Flexibility of tenure considerations (1 year extension before tenure decision is made for each pregnancy, up to a maxium of two).
5. Adopt policy which would enable husbands and wives to be on the same faculty.
6. Establish day-care centers (perhaps in existing School of Education teacher-training programs).
7. Expand curriculum to provide adequate treatment of women's experience.
8. Pro ide continuous review of women on their own campus by the state senior administrator.

OPEN EDUCATION

Document: E. A. Chittenden, "Open Education: Changing Schools for Children," in *Educational Research: Prospects and Priorities,* Appendix 1 to Hearings on H.R. 3606 and Related Bills To Create a National Institute of Education Before the Select Subcommittee on Education, Committee on Education and Labor, House of Representatives, U.S. Government Printing Office, Washington, D.C., January 1972.

Approach: Discusses the problem of defining "open" schools; examines the elements of child, teacher, and community involvement as they relate in various models; and points out the complex problem of conceptualizing classroom process in ways which permit meaningful comparisons between educational programs.

Recommendations: Learning and development in open education could be assessed by examining four major aspects:

1. Resourcefulness and proficiency: the assessment of achievement needs to be broadened in directions which would assess the child's own contributions to learning and the extent to which his resources have been brought into play. What does the learning in question mean to the child? Does he apply it in various ways? Are they truly an integral part of his repertoire? Tests of proficiency could build on existing instruments but should be specifically extended to include measurement of judgment and performance.
2. Self-perception: assessment of the child's feeling about himself in relationship to school and school-related experiences. How does the child view school? Does he have confidence in his own abilities?
3. Personal and cognitive styles: do children in open settings evidence greater flexibility in these areas? Do they evidence less role caricature ("class clown," etc.) than children in traditional settings?

OPEN EDUCATION (Continued)

4. Self/others frame of reference: are children learning to take adaptive and active roles in instructing each other? To what extent does the child express opinion in the context of peer values which may oppose that opinion? It is suggested that evaluation of student achievement in a school system should include appraisal of school practices since they determine the environment provided by that system. Questions concerning teacher preparation and in-service training are given priority for further study; intensive study of a limited sample of children in several good open schools is recommended.

HIGHER EDUCATION FOR NEW STUDENTS IN THE 1970s

Document: K. P. Cross, "Planning for New Students to Higher Education in the 70's," in *Educational Research: Prospects and Priorities*, Appendix 1 to Hearings on H.R. 3606 and Related Bill To Create a National Institute of Education Before the Select Subcommittee on Education, House of Representatives, U.S. Government Printing Office, Washington, D.C., January 1972.

Thesis: There will be a new student in colleges and universities in the 1970s, one who requires new approaches to education. Traditional higher education was designed in a different era for a different kind of student, and the formulations of education that served the academically oriented youth 50 years ago are no longer adequate.

Approach: The document briefly reviews the history of admission philosophies (aristocratic, meritocratic, egalitarian), current patterns of attendance, and existing barriers to students with low socioeconomic status and low aptitude. The trend toward accommodation of education to the needs of students who gained admission through access programs is noted, and characteristics of the new student are projected by assuming a pattern of universal higher education in which 80 percent of high school graduates would continue their education.

Recommendation: Three immediate implications for federal programs that result from the influx of new students are noted:

1. The majority of young men now entering public community colleges will require some form of "remedial" help before they can meet the traditional standard of college.
2. New female students are coming from lower socioeconomic backgrounds and, although they made average grades in high school, they will need financial assistance.
3. The highest financial priority should be given to the development of effective educational programs for new students.

MEASUREMENT NEEDS OF EDUCATION

Document: W. W. Turnbull, "Meeting the Measurement Needs of Education," in *Educational Research: Prospects and Priorities*, Appendix 1 to Hearings on H.R. 3606 and Related Bills To Create a National Institute of Education Before the Select Subcommittee on Education, Committee on Education and Labor, House of Representatives, U.S. Government Printing Office, Washington, D.C., January 1972.

Thesis: Despite our success in providing examples of outstanding educational programs and sophisticated measurement techniques, we find them coexisting with substandard educational conditions and primitive measurement methods.

Approach: Three propositions are suggested as a strategy for meeting the measurement needs:

1. We have now reached a stage where we can and should choose the questions for their intrinsic importance rather than for their convenience to the answers we have.
2. Education's measurement needs of the 1970s are, of course, a special subset of the needs of education itself.
3. Development in measurement must be inbedded in, and integral to, broad approaches to bring about change in education. Most of the important real-world problems we are being called on to tackle will yield only to multifaceted, multidisciplinary attack.

Summary: In the area of assessment, we have made minimal progress toward defining what we want from education; even if we could define educational goals specifically and agree on targets, we are not yet able to measure how close we are to most of them. There is a need to integrate the insights of the two disciplines of economics and educational measurement to produce a new synthesis.

THE ECONOMIC BENEFITS OF A COLLEGE DEGREE

Document: R. T. Harnett, "Mass Higher Education and the Economic Benefits of a College Degree," in *Educational Research: Prospects and Priorities*, Appendix 1 to Hearings on H.R. 3606 and Related Bills To Create a National Institute of Education Before the Select Subcommittee on Education, Committee on Education and Labor, House of Representatives, U.S. Government Printing Office, Washington, D.C., January 1972.

Thesis: (1) The percentage of high school graduates going on to college has been increasing steadily and will most likely continue to do so; (2) a very high percentage of these students are attending college because of the perceived financial gains that will result when, in fact, for a great many of these students, such gains may not be achieved; and (3) the net effect of tying job entry to educational attainment in many occupations may simply be to prolong the number of years in compulsory education with little financial benefit to the students who view this as the primary purpose of higher education.

Research and Policy Considerations:

1. It would seem imperative to learn much more about the relationship between educational attainment and job performance in many occupations.
2. Analysis should be conducted regarding the relationship between various college experience data (e.g., college "quality," rank in class, major field) and subsequent job opportunities, success, and satisfaction.
3. An investigation should be conducted on the factors that influence student expectations of the benefits of college, the extent to which these expectations change during the college years, and whether students feel that their perceived needs have been satisfied.

THE ECONOMIC BENEFITS OF A COLLEGE DEGREE (Continued)

4. More data is needed on the kinds of post-secondary training that are most appropriate for various types of students.

THE MORAL CONTENT OF AMERICAN PUBLIC EDUCATION

Document: I. Scheffler, "The Moral Content of American Public Education," in *Educational Research: Prospects and Priorities*, Appendix 1 to Hearings on H.R. 3606 and Related Bills To Create a National Institute of Education Before the Select Subcommittee on Education, Committee on Education and Labor, House of Representatives, U.S. Government Printing Office, Washington, D.C., January 1972.

Thesis: "The commitment to the ideal of democracy as an organizing principle of society has radical and far-reaching consequences for the educational conceptions that guide the development of our children."

Implications for schooling:

1. Formal agencies of schooling do not and cannot carry the entire burden of education in a democratic society, in particular, moral and character education. The question of moral education in a democracy must be raised not only within the scope of the classroom, but also within the several realms of institutional conduct.
2. The central connection among moral, scientific, and democratic aspects of education suggests that the fundamental trait to be encouraged in the schools is that of reasonableness. The challenge of moral education is to develop critical thought in the sphere of practice, and it is continuous with the challenge to develop critical thought in all aspects and phases of schooling. Moral education should pervade the entire school experience.
3. The purpose of moral education in a democracy is to liberate. The critical questions concern the quality of the learning environment: what is the nature of the particular school experience--content as well as structure? Does it liberate the child in the long run? Does it open itself to questioning and discussion?

EDUCATING FOR THE FUTURE

Document: J. A. Moore, "Educating for the Future," in *Educational Research: Prospects and Priorities*, Appendix 1 to Hearings on H.R. 3606 and Related Bills To Create a National Institute of Education Before the Select Subcommittee on Education, Committee on Education and Labor, House of Representatives, U.S. Government Printing Office, Washington, D.C., January 1972.

Thesis: (1) Schools should give their students an intelligent understanding of the world in which they live; (2) all education must be for some purpose, for instance, the purpose of stimulating the student to learn about his world; (3) education should be directed to the needs of society; (4) science is the most powerful tool that man has to alleviate human conditions, and the methods and men of science should be used to help in educational reform.

Recommendations: A curriculum plan should provide an understanding (of nature, man's place in nature, social groupings, his nature as an organism, etc.) which would lead to the child becoming an effective adult, capable of dealing with the future. Beginning with the first few years in school, a significant portion of the student's time should consist of studies of the real world (approximately 20 percent of his time during first few grades, increasing to 60 to 80 percent during high school). The 12 years of schooling would be divided into three blocks:

1. Kindergarten through grade 4: the child begins to learn about his world, especially the natural world.
2. Grades 5 through 8: the emphasis is on man (continued strong emphasis on exploring, reading, writing, mathematics, and social realtions developed in relation to some of the basic requirements for man's life).

EDUCATING FOR THE FUTURE (Continued)

3. Grades 9 through 12: the emphasis is on society (man in a social context, government, law, the future).
This three-part division is a necessary change in curriculum because: "If we define an uneducated person as one incapable of dealing effectively with his world, an increasing proportion of our young leave school uneducated."

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